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<110> Xenon Genetics Inc.

<120> Juvenile Hemochromatosis Gene (HFE2A), Expression Products and Uses Thereof

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<151> 2003-04-09

<150> 60/462,867

<151> 2003-04-15

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Thr His Cys Gly Leu Phe Gly Asp Pro His Leu Arg Thr Phe Thr Asp
 165 170 175
 Arg Phe Gln Thr Cys Lys Val Gln Gly Ala Trp Pro Leu Ile Asp Asn
 180 185 190
 Asn Tyr Leu Asn Val Gln Ala Thr Asn Thr Pro Val Leu Pro Gly Ser
 195 200 205
 Ala Ala Thr Ala Thr Ser Lys Leu Thr Ile Ile Phe Lys Asn Phe Gln
 210 215 220
 Glu Cys Val Asp Gln Lys Val Tyr Gln Ala Glu Met Asp Glu Leu Pro
 225 230 235 240
 Ala Ala Phe Val Asp Gly Ser Lys Asn Gly Gly Asp Lys His Gly Ala
 245 250 255
 Asn Ser Leu Lys Ile Thr Glu Lys Val Ser Gly Gln His Val Glu Ile
 260 265 270
 Gln Ala Lys Tyr Ile Gly Thr Thr Ile Val Val Arg Gln Val Gly Arg
 275 280 285
 Tyr Leu Thr Phe Ala Val Arg Met Pro Glu Glu Val Val Asn Ala Val
 290 295 300
 Glu Asp Trp Asp Ser Gln Gly Leu Tyr Leu Cys Leu Arg Gly Cys Pro
 305 310 315 320
 Leu Asn Gln Gln Ile Asp Phe Gln Ala Phe His Thr Asn Ala Glu Gly
 325 330 335
 Thr Gly Ala Arg Arg Leu Ala Ala Ala Ser Pro Ala Pro Thr Ala Pro
 340 345 350
 Glu Thr Phe Pro Tyr Glu Thr Ala Val Ala Lys Cys Lys Glu Lys Leu
 355 360 365
 Pro Val Glu Asp Leu Tyr Tyr Gln Ala Cys Val Phe Asp Leu Leu Thr
 370 375 380
 Thr Gly Asp Val Asn Phe Thr Leu Ala Ala Tyr Tyr Ala Leu Glu Asp
 385 390 395 400
 Val Lys Met Leu His Ser Asn Lys Asp Lys Leu His Leu Tyr Glu Arg
 405 410 415
 Thr Arg Asp Leu Pro Gly Arg Ala Ala Ala Gly Leu Pro Leu Ala Pro
 420 425 430
 Arg Pro Leu Leu Gly Ala Leu Val Pro Leu Leu Ala Leu Leu Pro Val
 435 440 445
 Phe Cys
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<210> 24
 <211> 478
 <212> PRT
 <213> Homo sapiens

<400> 24

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Ser His Gly Pro Arg Pro Ala Thr Ala Pro Ala Pro Pro Pro Ser Pro
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Glu Pro Thr Arg Pro Ala Trp Thr Gly Met Gly Leu Arg Ala Ala Pro
           35           40           45

Ser Ser Ala Ala Ala Ala Ala Ala Glu Val Glu Gln Arg Arg Ser Pro
           50           55           60

Gly Leu Cys Pro Pro Pro Leu Glu Leu Leu Leu Leu Leu Phe Ser
65           70           75           80

Leu Gly Leu Leu His Ala Gly Asp Cys Gln Gln Pro Ala Gln Cys Arg
           85           90           95

Ile Gln Lys Cys Thr Thr Asp Phe Val Ser Leu Thr Ser His Leu Asn
           100          105          110

Ser Ala Val Asp Gly Phe Asp Ser Glu Phe Cys Lys Ala Leu Arg Ala
           115          120          125

Tyr Ala Gly Cys Thr Gln Arg Thr Ser Lys Ala Cys Arg Gly Asn Leu
           130          135          140

Val Tyr His Ser Ala Val Leu Gly Ile Ser Asp Leu Met Ser Gln Arg
145          150          155          160

Asn Cys Ser Lys Asp Gly Pro Thr Ser Ser Thr Asn Pro Glu Val Thr
           165          170          175

His Asp Pro Cys Asn Tyr His Ser His Ala Gly Ala Arg Glu His Arg
           180          185          190

Arg Gly Asp Gln Asn Pro Pro Ser Tyr Leu Phe Cys Gly Leu Phe Gly
           195          200          205

Asp Pro His Leu Arg Thr Phe Lys Asp Asn Phe Gln Thr Cys Lys Val
           210          215          220

Glu Gly Ala Trp Pro Leu Ile Asp Asn Asn Tyr Leu Ser Val Gln Val
225          230          235          240

Thr Asn Val Pro Val Val Pro Gly Ser Ser Ala Thr Ala Thr Asn Lys
           245          250          255

Ile Thr Ile Ile Phe Lys Ala His His Glu Cys Thr Asp Gln Lys Val

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260				265				270							
Tyr	Gln	Ala	Val	Thr	Asp	Asp	Leu	Pro	Ala	Ala	Phe	Val	Asp	Gly	Thr
275				280				285							
Thr	Ser	Gly	Gly	Asp	Ser	Asp	Ala	Lys	Ser	Leu	Arg	Ile	Val	Glu	Arg
290				295				300							
Glu	Ser	Gly	His	Tyr	Val	Glu	Met	His	Ala	Arg	Tyr	Ile	Gly	Thr	Thr
305				310				315				320			
Val	Phe	Val	Arg	Gln	Val	Gly	Arg	Tyr	Leu	Thr	Leu	Ala	Ile	Arg	Met
				325				330				335			
Pro	Glu	Asp	Leu	Ala	Met	Ser	Tyr	Glu	Glu	Ser	Gln	Asp	Leu	Gln	Leu
				340				345				350			
Cys	Val	Asn	Gly	Cys	Pro	Leu	Ser	Glu	Arg	Ile	Asp	Asp	Gly	Gln	Gly
355				360				365							
Gln	Val	Ser	Ala	Ile	Leu	Gly	His	Ser	Leu	Pro	Arg	Thr	Ser	Leu	Val
370				375				380							
Gln	Ala	Trp	Pro	Gly	Tyr	Thr	Leu	Glu	Thr	Ala	Asn	Thr	Gln	Cys	His
385				390				395				400			
Glu	Lys	Met	Pro	Val	Lys	Asp	Ile	Tyr	Phe	Gln	Ser	Cys	Val	Phe	Asp
				405				410				415			
Leu	Leu	Thr	Thr	Gly	Asp	Ala	Asn	Phe	Thr	Ala	Ala	Ala	His	Ser	Ala
				420				425				430			
Leu	Glu	Asp	Val	Glu	Ala	Leu	His	Pro	Arg	Lys	Glu	Arg	Trp	His	Ile
435				440				445							
Phe	Pro	Ser	Ser	Gly	Asn	Gly	Thr	Pro	Arg	Gly	Gly	Ser	Asp	Leu	Ser
450				455				460							
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<212> PRT
<213> Mus musculus
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<400> 25

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1 5 10 15

Leu Ser Thr Leu Thr Leu Leu Leu Leu Leu Cys Gly Gln Ala His Ser
20 25 30

Gln Cys Lys Ile Leu Arg Cys Asn Ala Glu Tyr Val Ser Ser Thr Leu

Ser	Leu	Arg	Gly	Gly	Gly	Ser	Pro	Asp	Thr	Pro	Arg	Gly	Gly	Gly	Arg	
50						55					60					
Gly	Gly	Leu	Ala	Ser	Gly	Gly	Leu	Cys	Arg	Ala	Leu	Arg	Ser	Tyr	Ala	
65					70				75						80	
Leu	Cys	Thr	Arg	Arg	Thr	Ala	Arg	Thr	Cys	Arg	Gly	Asp	Leu	Ala	Phe	
				85					90					95		
His	Ser	Ala	Val	His	Gly	Ile	Glu	Asp	Leu	Met	Ile	Gln	His	Asn	Cys	
			100					105					110			
Ser	Arg	Gln	Gly	Pro	Thr	Ala	Pro	Pro	Pro	Ala	Arg	Gly	Pro	Ala	Leu	
		115					120					125				
Pro	Gly	Ala	Gly	Pro	Ala	Pro	Leu	Thr	Pro	Asp	Pro	Cys	Asp	Tyr	Glu	
	130					135					140					
Ala	Arg	Phe	Ser	Arg	Leu	His	Gly	Arg	Ala	Pro	Gly	Phe	Leu	His	Cys	
145					150					155					160	
Ala	Ser	Phe	Gly	Asp	Pro	His	Val	Arg	Ser	Phe	His	Asn	Gln	Phe	His	
				165					170					175		
Thr	Cys	Arg	Val	Gln	Gly	Ala	Trp	Pro	Leu	Leu	Asp	Asn	Asp	Phe	Leu	
			180					185					190			
Phe	Val	Gln	Ala	Thr	Ser	Ser	Pro	Val	Ser	Ser	Gly	Ala	Asn	Ala	Thr	
		195					200					205				
Thr	Ile	Arg	Lys	Ile	Thr	Ile	Ile	Phe	Lys	Asn	Met	Gln	Glu	Cys	Ile	
	210					215					220					
Asp	Gln	Lys	Val	Tyr	Gln	Ala	Glu	Val	Asp	Asn	Leu	Pro	Ala	Ala	Phe	
225					230					235					240	
Glu	Asp	Gly	Ser	Ile	Asn	Gly	Gly	Asp	Arg	Pro	Gly	Gly	Ser	Ser	Leu	
				245					250					255		
Ser	Ile	Gln	Thr	Ala	Asn	Leu	Gly	Ser	His	Val	Glu	Ile	Arg	Ala	Ala	
			260					265					270			
Tyr	Ile	Gly	Thr	Thr	Ile	Ile	Ile	Arg	Gln	Thr	Ala	Gly	Gln	Leu	Ser	
		275					280					285				
Phe	Ser	Ile	Arg	Val	Ala	Glu	Asp	Val	Ala	Arg	Ala	Phe	Ser	Ala	Glu	
		290				295					300					
Gln	Asp	Leu	Gln	Leu	Cys	Val	Gly	Gly	Cys	Pro	Pro	Ser	Gln	Arg	Leu	
305					310					315					320	
Ser	Arg	Ser	Glu	Arg	Asn	Arg	Arg	Gly	Ala	Ile	Ala	Ile	Asp	Thr	Ala	
				325					330						335	

Arg Arg Leu Cys Lys Glu Gly Leu Pro Val Glu Asp Ala Tyr Phe Gln
 340 345 350

Ser Cys Val Phe Asp Val Ser Val Ser Gly Asp Pro Asn Phe Thr Val
 355 360 365

Ala Ala Gln Thr Ala Leu Asp Asp Ala Arg Ile Phe Leu Thr Asp Leu
 370 375 380

Glu Asn Leu His Leu Phe Pro Ser Asp Ala Gly Pro Pro Leu Ser Pro
 385 390 395 400

Ala Ile Cys Leu Val Pro Leu Leu Ser Ala Leu Phe Val Leu Trp Leu
 405 410 415

Cys Phe Ser Lys
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<210> 26

<211> 422

<212> PRT

<213> Rattus rattus

<400> 26

Met Gly Asp Arg Gly Arg Ser Pro Ser Leu Arg Ser Pro His Gly Ser
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Pro Pro Thr Leu Ser Thr Leu Thr Leu Leu Leu Leu Cys Gly Gln
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Ala His Ser Gln Cys Lys Ile Leu Arg Cys Asn Ala Glu Tyr Val Ser
 35 40 45

Phe Thr Leu Ser Leu Arg Gly Gly Gly Ser Pro Asp Thr Pro Arg Gly
 50 55 60

Gly Gly Arg Gly Gly Pro Ala Ser Gly Gly Leu Cys Arg Ala Leu Arg
 65 70 75 80

Ser Tyr Ala Leu Cys Thr Arg Arg Thr Ala Arg Thr Cys Arg Gly Asp
 85 90 95

Leu Ala Phe His Ser Ala Val His Gly Ile Glu Asp Leu Met Ile Gln
 100 105 110

His Asn Cys Ser Arg Gln Gly Pro Thr Ala Ser Pro Pro Ala Arg Gly
 115 120 125

Pro Ala Leu Pro Gly Ala Gly Pro Ala Pro Leu Thr Pro Asp Pro Cys
 130 135 140

Asp Tyr Glu Ala Arg Phe Ser Arg Leu His Gly Arg Thr Pro Gly Phe
 145 150 155 160

Leu His Cys Ala Ser Phe Gly Asp Pro His Val Arg Ser Phe His Asn

165

170

175

Leu Trp Phe Cys Ile Gln
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<212>	PRT
<213>	Fugu

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 35 40 45
 Thr Cys Thr Lys Arg Met Ala Arg Pro Cys Arg Gly Asp Leu Ala Tyr
 50 55 60
 His Ser Ala Val Gln Gly Ile Glu Asp Leu Leu Ile Gln Tyr Arg Cys
 65 70 75 80
 Pro Leu Ala Gly Pro Thr Ala Gln Pro Arg Pro Leu Pro Pro Leu Leu
 85 90 95
 Ser Gly Asp Val Cys Leu Tyr Asp Arg Arg Leu Ala Ala Ala Glu Ala
 100 105 110
 Pro Gln Pro Asp Tyr Leu His Cys Gly Val Phe Gly Asp Pro His Ile
 115 120 125
 Arg Thr Phe Asn Asn Asp Phe His Thr Cys Ala Val Gln Gly Ala Trp
 130 135 140
 Pro Leu Ile Asp Asn Asp Phe Leu Tyr Val Gln Ala Thr Ser Ser Pro
 145 150 155 160
 Thr Arg Arg Gly Thr Gln Ala Thr Met Leu Thr Lys Ile Thr Val Ile
 165 170 175
 Val Lys Ser Trp Arg His Cys Val Asp Gln Gln Leu Tyr Gln Ala Glu
 180 185 190
 Leu Asp Asp Val Pro Met Ala Phe Ala Asp Gly Ser Val Val Ser Gly
 195 200 205
 Glu Arg Arg Gly Gln His Thr Leu Ala Ile Thr Gln Ser Pro Gly Arg
 210 215 220
 His Ala Glu Ile Arg Ala Ala His Ile Ala Thr Val Ala Ser Gly Gln
 225 230 235 240
 Ser Gly Arg Ser Leu Ser Leu Ser Val Tyr Ser Pro Arg Ser Val Val
 245 250 255
 Glu Ala Phe Gly Pro Glu Gln Asp Leu Gln Leu Cys Met Trp Gly Cys
 260 265 270
 Pro Ala Ser Gln Lys Leu Ser Thr Pro Pro Pro Thr Ser Ser Thr Phe
 275 280 285
 Ser Ala Ala Val Leu Ala His Cys Asp Ala Leu Leu Pro Val Arg Asp

<210>	28
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<212>	PRT
<213>	Chicken

Pro Val Phe Leu Cys Ile Phe Pro Pro Val Thr Ser Pro Cys Lys Ile
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Leu Gly Ala Glu Glu Thr Pro Glu Phe Cys Thr Ala Leu Arg Ala Tyr
50 55 60

Tyr His Ser Ala Val His Gly Ile Asp Asp Leu Met Val Gln His Asn
85 90 95

Pro Gly Asp Ser Gln Glu Arg Ser Asp Ser Pro Glu Ile Cys His Tyr
115 120 125

Gly Leu Phe Gly Asp Pro His Leu Arg Thr Phe Thr Asp Thr Phe Gln
145 150 155 160

Asn Val Gln Val Thr Asn Thr Pro Val Leu Pro Gly Ser Ser Ala Thr

180					185					190					
Ala	Thr	Ser	Lys	Leu	Thr	Ile	Ile	Phe	Lys	Ser	Phe	Gln	Glu	Cys	Val
	195						200					205			
Glu	Gln	Lys	Val	Tyr	Gln	Ala	Glu	Met	Asp	Glu	Leu	Pro	Ala	Ala	Phe
	210					215					220				
Ala	Asp	Gly	Ser	Lys	Asn	Gly	Gly	Asp	Lys	His	Gly	Ala	Asn	Ser	Leu
225					230					235					240
Lys	Ile	Thr	Glu	Lys	Val	Ser	Gly	Gln	His	Ile	Glu	Ile	Gln	Ala	Lys
				245					250					255	
Tyr	Ile	Gly	Thr	Thr	Ile	Val	Val	Arg	Gln	Val	Gly	Arg	Tyr	Leu	Thr
			260					265					270		
Phe	Ala	Val	Arg	Met	Pro	Glu	Glu	Val	Val	Asn	Ala	Val	Glu	Asp	Arg
	275						280					285			
Asp	Ser	Gln	Gly	Leu	Tyr	Leu	Cys	Leu	Arg	Gly	Cys	Pro	Leu	Asn	Gln
	290					295					300				
Gln	Ile	Asp	Phe	Gln	Thr	Phe	Arg	Leu	Ala	Gln	Ala	Ala	Glu	Gly	Arg
305					310					315					320
Ala	Arg	Arg	Lys	Gly	Pro	Ser	Leu	Pro	Ala	Pro	Pro	Glu	Ala	Phe	Thr
			325						330					335	
Tyr	Glu	Ser	Ala	Thr	Ala	Lys	Cys	Arg	Glu	Lys	Leu	Pro	Val	Glu	Asp
		340						345					350		
Leu	Tyr	Phe	Gln	Ser	Cys	Val	Phe	Asp	Leu	Leu	Thr	Thr	Gly	Asp	Val
	355						360					365			
Asn	Phe	Met	Leu	Ala	Ala	Tyr	Tyr	Ala	Phe	Glu	Asp	Val	Lys	Met	Leu
	370					375					380				
His	Ser	Asn	Lys	Asp	Lys	Leu	His	Leu	Tyr	Glu	Arg	Thr	Arg	Ala	Leu
385					390					395					400
Ala	Pro	Gly	Asn	Ala	Ala	Pro	Ser	Glu	His	Pro	Trp	Ala	Leu	Pro	Ala
			405						410					415	
Leu	Trp	Val	Ala	Leu	Leu	Ser	Leu	Ser	Gln	Cys	Trp	Leu	Gly	Leu	Leu
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<213> Artificial

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<210> 30
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<400> 30
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<210> 31
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<400> 31
acctgccgcg gggacctcgc c 21

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<400> 32
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<400> 35
tcccttctgt ctttagctca t 21

<210> 36
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<400> 36
tcccttctgt gttagctca t 21

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<400> 37
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gaggaggagg aggccggggt gga 23

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<400> 49
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<210> 54
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agatgctggg attcctcttt c 21

<210> 55
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<400> 56
gactcactgc agccttgacc 20

<210> 57
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<210> 58
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gcttgaaact gggagttgga 20

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